

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 00-015
NPDES NO. CA0005053

WASTE DISCHARGE REQUIREMENTS FOR:

TOSCO CORPORATION
SAN FRANCISCO AREA REFINERY AT RODEO
1380 SAN PABLO AVENUE
RODEO, CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Board), finds that:

1. Tosco Corporation (hereinafter the Discharger) submitted an application on March 24, 1999 for the reissuance of National Pollutant Discharge Elimination System (NPDES) Permit No. CA0005053 for the San Francisco Area Refinery at Rodeo (Rodeo Refinery). The application, referred to as Report of Waste Discharge, consists of: completed U.S. Environmental Protection Agency (USEPA) Form 3510-1 (Form 1 - General Facility Information); Form 3510-2C (Wastewater Discharge Information); and Attachments 2C-A, -B, -C, -D, -E, and -F. The Discharger has also submitted several amendments providing supplemental information to the application.

FACILITY DESCRIPTION

2. Located at 1380 San Pablo Avenue, Rodeo, Contra Costa County, the Rodeo Refinery is a fully integrated petroleum refinery composing of over 20 processing units. **Figure 1** shows the location map of the refinery.
3. The Rodeo Refinery receives crude oil and other feedstocks by vessels and pipelines, and delivers refined products to customers via tanker/barge, rail cars, trucks, and pipelines. Crude oil is cracked and processed at the site¹ to produce gasoline, diesel fuel, and jet fuel. Sulfur and petroleum coke are produced as by-products. Lubricating oils and food grade waxes were once manufactured at the refinery. Since November 1997, the Discharger discontinued the production of these products.
4. In applying for permit renewal, the Discharger submitted in its application the refinery production data for the years 1996 through 1998. The Discharger claims that the 1997 annual average daily throughput rate, which is 79,950 barrels per day, is a reasonable estimate of the refinery annual throughput rate over the next five years. Therefore, this refinery throughput rate is used in developing the production-based effluent limitations for this Order.

¹ The terms "Rodeo Refinery", "refinery", and "site" are used interchangeably for the purpose of this Order.

EXISTING PERMIT

5. The existing permit was issued under Board Order No. 94-129 (hereinafter referred to as the Previous Order) to Unocal Corporation (Unocal) on September 21, 1994. The permit regulates the discharges of treated wastewater and stormwater runoff, and non-contact once-through salt cooling waters from the Site. On April 1, 1997, Unocal sold the Rodeo Refinery, and transferred the permit to, the Discharger.

REFINERY CATEGORY

6. The Rodeo Refinery is classified as a cracking refinery, which is defined in 40 CFR 419.20.

MAJOR DISCHARGER

7. The State and the USEPA have classified the Rodeo Refinery as a major discharger.

WASTEWATER DISCHARGES

8. The Report of Waste Discharge, recent self-monitoring reports, and other available relevant information describe the discharges as follows:
 - a. **Waste 001** consists of 0.9 million gallons per day (MGD) of non-contact once-through salt cooling water and 0.1 MGD of wastewater (1998 data) from an on-site demineralizer regeneration plant. The refinery uses San Pablo Bay water for its process cooling purpose. Occasionally limited amount of potable water from East Bay Municipal Utility District (EBMUD) may be added as a result of saltwater pump failure or maintenance work to supplement the saltwater for cooling purpose. From the intake location (I-001) at the saltwater pump house, a portion of the cooling saltwater is routed through certain refinery process units prior to discharging as part of Waste 001. If required, the saltwater will be chlorinated intermittently to control the growth of marine organisms within the cooling system. Sodium bisulfite will then be added to dechlorinate the saltwater prior to discharge. However, chlorine has not been added to the saltwater intake since March 1991. Waste 001 is discharged at elevated temperature to San Pablo Bay via outfall E-001 (lat. 38°02'54", long. 122°15'40"). The Discharger estimates that the average flow rate for Waste 001 may be increased to 5 MGD over the next five years.
 - b. **Waste 002** consists of refinery process wastewater, cooling tower blowdown, boiler blowdown, cargo hold wash water, sanitary waste, offsite wastewater generated at other Tosco Corporation owned facilities and/or remediation activities conducted by the Discharger, recovered groundwater from on-site remediation, and process area stormwater runoff. The term "cargo hold wash water" refers to either San Pablo Bay water or ocean water used to wash out cargo tanks on ships. Since its purchase of the refinery in 1997, the Discharger has substantially reduced the generation of cargo hold wash water at the site. This reduction is achieved through the sale of three of the four company-owned product tankers, and also by managing the sequence of cargo loading on subsequent voyages (e.g. load diesel into compartments that previously contained diesel). The present annual average daily flow rate of Waste 002 is 2.9 MGD. Waste 002 is treated at the on-site wastewater treatment plant prior to being discharged to San Pablo Bay through a 6,000-foot, 18-inch diameter outfall pipe. The outfall, referred to as E-002, terminates with a multi-port diffuser (lat. 38°03'22", long. 122°15'36").

- c. **Waste 003** consists of approximately 24.5 MGD of non-contact once-through salt cooling water, 0.1 MGD of wastewater from another demineralizer regeneration process, and approximately 0.5 MGD of stormwater runoff from undeveloped areas of the refinery, main parking lot, salvage yard, some portion of I-80 and San Pablo Avenue. The cooling water portion of Waste 003 is taken from San Pablo Bay. Similar to Waste 001, limited amount of EBMUD potable water may be added to supplement the salt cooling water as a result of saltwater pump failure or maintenance work. As described in Finding 8a above, intermittent chlorination and dechlorination is required to control the growth of marine organisms within the cooling system. However, no chlorination and dechlorination have been accomplished since 1991. Waste 003 is discharged at elevated temperature to San Pablo Bay via outfall E-003 (lat. 38°02'41", long. 122°15'41"). The Discharger estimates that the average flow rate for Waste 003 may be increased to 30 MGD over the next five years.
- d. **Waste 004** consists of miscellaneous discharges of stormwater runoff by sheet flow to San Pablo Bay from areas around the refinery's Marine Terminal and causeway (lat. 38°03'22", long. 122°15'36"). Stormwater runoff from these areas is estimated at 0.006 MGD.

WASTEWATER CHARACTERISTICS

9. The following summarizes the general quality of the treated Waste 002 as described in the March 24, 1999 permit application and in self-monitoring reports up to August 1999:

<u>Constituent</u>	<u>Long-Term Average</u>	<u>Daily Maximum</u>
Flow (MGD)	2.9	11.5
BOD ₅ (mg/l)	<3	37
COD (mg/l)	--	58
TOC (mg/l)	16	37
TSS (mg/l)	<7.2	58
Ammonia as N (mg/l)	<0.17	0.51
pH	5.6 min., 8.4 max.	
Oil & Grease (mg/l)	<0.8	2
Arsenic (µg/l)	<5	<8
Cadmium (µg/l)	<2	12
Chromium (µg)	<3	6
Copper (µg/l)	<7	19
Lead (µg/l)	<3	13
Mercury (µg/l)	<0.05	0.11
Nickel (µg/l)	<6	11
Selenium (µg/l) ²	14.8	28
Silver (µg/l)	<2	<5
Zinc (µg/l)	<14	40
Cyanide (µg/l)	<12	24
Phenols (µg/l)	<50	<50
Residual Chlorine (mg/l)	<0.06	1.8
TCDD Equivalents (pg/l)	non-detect (<5.2)	

² These daily maximum and long-term average concentrations of selenium are based on effluent data collected between August 1998 (one month after the startup of the Selenium Removal Plant) and August 1999.

<u>Constituent</u>	<u>Long-Term Average</u>	<u>Daily Maximum</u>
Benzene (µg/l)	<4	<5
Chloroform (µg/l)	<12	48
Bromoform (µg/l)	<30	160
Chlorodibromomethane (µg/l)	<31	130
Dichlorobromomethane (µg/l)	<20	78
Methylene Chloride (µg/l)	<5.1	5.4
MTBE (µg/l)	1,470	2,950
Anthracene (µg/l)	<0.08	0.26
Benzo(a)Pyrene (µg/l)	<0.05	<0.05
Chryene (µg/l)	<0.06	0.13
Naphthalene (µg/l)	<0.5	0.7
Phenanthrene (µg/l)	<0.12	0.5
Pyrene (µg/l)	<0.05	0.1
Other PAHs (µg/l)	below respective detection limits	
Volatile Organic Compounds	-ditto-	
Acid/Neutral Organic Compounds	-ditto-	
PCBs total, and Pesticides	-ditto-	

A summary of the Self-Monitoring Report data is included in Table 1 of the Fact Sheet of this Order. The Discharger has analyzed fecal coliform for Waste 002 since the new disinfection system was put in service on July 1, 1998. Data collected between October 1998 through April 1999 show that effluent at E-002 has fecal coliform typically less than 20 MPN/100 mL.

10. Based on the available information in the Discharger's application and subsequent amendments, the general characteristics of the saltwater intake I-1, Wastes 001 and 003 are summarized as follows:

Intake I-1	<u>Constituent</u>	<u>Concentration</u>	
	Total Chromium (mg/l)	0.012	
	Hexavalent Chromium (mg/l)	<0.005	
	Total Suspended Solids (mg/l)	140	
	COD (mg/l)	<200	
E-001 discharge	<u>Constituent</u>	<u>Long-Term Average</u>	<u>Daily Maximum</u>
	Flow (MGD)	1	7.6
	TOC (mg/l)	<1	6.5
	COD (mg/l)	--	140
	BOD (mg/l)	--	<1
	TSS (mg/l)	--	48
	Ammonia as N (mg/l)	--	0.9
	pH	6.4 min, 9.0 max	
	Temperature (°C)	Summer	30
		Winter	26
E 003 discharge	<u>Constituents</u>	<u>Long-Term Average</u>	<u>Daily Maximum</u>
	Flow (MGD)	25	65
	TOC (mg/l)	<0.6	10.4
	COD (mg/l)	--	120

<u>Constituent</u>	<u>Long-Term Average</u>	<u>Daily Maximum</u>
BOD (mg/l)	--	3.8
TSS (mg/l)	--	67
Ammonia as N (mg/l)	--	0.17
pH	6.5 min, 8.4 max	
Temperature (°C)	Summer	39
	Winter	29

11. The general characteristics of stormwater runoff as discharged at outfall E-004 are reported in the March 24, 1999 permit application, and are summarized as follows:

<u>Constituent</u>	<u>Long-Term Average</u>	<u>Daily Maximum</u>
Flow (MGD)	0.006 (estimated)	--
TOC (mg/l)	<2.3	3.8
COD (mg/l)	--	<20
BOD (mg/l)	--	<1
TSS (mg/l)	--	<1
Ammonia as N (mg/l)	--	<0.082
Oil & Grease (mg/l)	<0.6	0.9
pH	6.6 min, 6.9 max	

WASTEWATER TREATMENT UNITS

12. **Figure 2** is a simplified flow diagram of the on-site wastewater treatment plant. From the process sewer system, Waste 002 (except the sour water stripper effluent) flows through a stormwater splitter box where the flow is split between the dry weather sump and the wet weather sump. Downstream of the stormwater splitter box, offsite wastewater (predominantly remediation wastewater) combines with Waste 002. The combined stream is pumped to the equalization and storage tanks. If the storage tanks reach safe fill or the flow rate exceeds the pumping capacity of the dry and wet weather sump pumps, or during equipment or power failure, the flow may be diverted to the Primary and Main Storm Basins. Wastewater from these storage tanks is flow-controlled to the API oil-water separator and dissolved air flotation (DAF) unit (consisting of four cells) for removal of floating oil, emulsions, and settleable solids. The DAF effluent flows to the aeration feed sump, from where the process wastewater is pumped to a powdered activated carbon/activated sludge system (consisting of two tanks) for biotreatment. Sludge is removed from the treated effluent in two clarifiers. The clarifier effluent may be directed to a bank of eight gravity-type sand-filters to remove excess solids during high flows or plant upset. Sodium hypochlorite solution is injected either upstream or downstream of the sand filters for effluent disinfection. The treated wastewater is pumped from the offshore diffuser sump to Outfall E-002 via 6000 feet of the 18" pipeline, which provides chlorination contact time of approximately 45 minutes at a normal flow rate of approximately 1,500 gallons per minute (GPM). In case of a maximum flow (7,000 GPM), the chlorination contact time is reduced to approximately 10 minutes. Sodium bisulfite solution is injected to dechlorinate the effluent prior to its discharge to San Pablo Bay.

SELENIUM REMOVAL PLANT

13. The Rodeo Refinery has a separate wastewater collection system that directs sour water stripper effluent to the recently installed Selenium Removal Plant (SRP), where selenium is precipitated using an aqueous copper sulfate solution. The copper/selenium solids are

flocculated and removed by sedimentation. Excess copper is removed by polymer precipitation, sedimentation, and optional media filtration. The effluent from the SRP combines with the process wastewater flow prior to the stormwater splitter box or may be introduced directly to the API separator in the wastewater treatment system.

SLUDGE HANDLING

14. Copper/selenium solids removed at the SRP are thickened, dewatered in a filter press, and sent to an off-site facility for disposal. Solids removed in the API separator and the DAF are pumped to storage tanks for dewatering and thickening. The thickened oily sludge is then processed through the Coking unit on the Site for oil recovery. Biological sludge removed from the clarifiers is concentrated in a thickener and sent to the wet air carbon regeneration unit, which regenerates spent powdered activated carbon for reuse in the activated sludge system and converts the biological solids to ash. A small blowdown stream from this unit is sent to the Coker.

LAND TREATMENT AREA

15. A 6.4-acre Land Treatment Area (LTA) is located east of Interstate Highway 80. It was constructed in 1975 and 1976 for the purpose of biotreatment of oily sludge generated from various refinery processes. Prior to any sludge being applied to the LTA, a sample was collected from the sludge and analyzed for oil content, total sulfides and metals. The Discharger indicated that no sludge from tanks that were known to have been in leaded gasoline service was treated at the LTA.
16. In 1988, the Discharger discontinued the use of and closed the LTA. Closure activities were conducted under the directives of Department of Toxic Substance Control (DTSC) during a period from April 1988 to October 1989. Upon closure, the LTA was left with a one-foot clean clay cap with vegetative cover on top of "biodegraded" wastes.
17. In the 30-year postclosure period that began in 1991, DTSC requires the Discharger to maintain the vegetative cover, berms, run-on ditches, warning signs and fences around the LTA, and remove storm water accumulated in the bermed area of the LTA. Currently the collected storm water is processed in the wastewater treatment plant. In its permit renewal application, the Discharger submitted a summary of analytical results for a stormwater sample collected from the bermed area, and requested to be allowed to discharge LTA stormwater as part of Waste 003 without treatment.
18. This Order continues the existing discharge of LTA stormwater through outfall E-002 unless sufficient water quality data representing the long-term characteristics of LTA stormwater are available for justifying the discharge through outfall E-003.

STORMWATER MANAGEMENT

19. Stormwater runoff at the process areas is collected, treated, and discharged as part of Waste 002. Uncontaminated stormwater runoff is discharged either as part of Waste 003 or Waste 004. The existing Storm Water Pollution Prevention Plan (SWPPP) establishes a monitoring program to assess the effectiveness of the control measures and the overall storm water quality.

REGIONAL MONITORING PROGRAM

20. On April 15, 1992, the Board adopted Resolution No. 92-043 directing the Executive Officer to implement the Regional Monitoring Program (RMP) for the San Francisco Bay. Subsequent to a public hearing and various meetings, Board staff requested major permit holders in this region, under authority of section 13267 of California Water Code, to report on the water quality of the estuary. These permit holders, including the Discharger, responded to this request by participating in a collaborative effort, through the San Francisco Estuary Institute (formerly the Aquatic Habitat Institute). This effort has come to be known as the San Francisco Bay Regional Monitoring Program for Trace Substances. This Order specifies that the Discharger shall continue to participate in the RMP, which involves collection of data on pollutants and toxicity in water, sediment and biota of the estuary. Annual reports from the RMP are referenced elsewhere in this Order.

EFFLUENT TOXICITY CONTROL PROGRAM

21. The Basin Plan adopts an Effluent Toxicity Control Program (ETCP) that requires certain permit holders, including the Discharger, to monitor the toxicity of their effluent using critical life stage toxicity tests. The Board implements the water quality objective for toxicity through the ETCP and by monitoring the toxicity of waters at or near discharge sites. The long-term goal of the ETCP is to develop water quality based effluent limits using information about the acute and chronic toxicity of each discharge and resulting toxicity in the receiving water. This Order specifies that the Discharger shall continue its effluent toxicity monitoring efforts as part of the compliance requirements.

CHRONIC TOXICITY

22. On January 22, 1999, the Discharger submitted a toxicity test screening proposal as part of its NPDES permit renewal. Results from Tier 1 and Tier 2 screening phase tests indicate that *Mysidopsis bahia* is the most sensitive species to the refinery effluent than the other four testing species. *Mysidopsis bahia* is used in the existing chronic toxicity for the refinery. Its test methodology is described in the USEPA document "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Second Edition" (USEPA-600-4-91-003).

RECEIVING WATER SALINITY

23. The Previous Permit describes San Pablo Bay, the receiving water for the discharges from the Site, as marine. Over the last several years, data on salinity of the receiving water have been collected at locations in the vicinity of outfall E-002 as part of the RMP effort. The available data show that San Pablo Bay has salinity exceeding 5 parts per thousand (ppt) more than 75% of a year. For the purpose of this Order, the receiving water is designated as marine.

CALIFORNIA TOXICS RULE

24. On August 5, 1997, the USEPA published a Proposed Rule for Water Quality Standards, Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (Federal Register 42160). These standards are generally referred to as the California Toxics Rule (CTR). The proposed CTR specified water quality standards for numerous pollutants, of which some may be applicable to the refinery's effluent discharges. The final rule is

expected to be adopted in 2000.

STATE BOARD'S IMPLEMENTATION PLANS

25. The State Water Resources Control Board (State Board) is currently in the process of developing implementation plans for the CTR. These are the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan. These plans prescribe the policies for implementing the water quality standards in the proposed CTR. The State Board intends to complete these plans once the USEPA finalizes the CTR.

APPLICABLE PLANS, POLICIES AND REGULATIONS

26. On June 21, 1995, the Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan), which was subsequently approved by the State Board and the Office of Administrative Law on July 20, and November 13, respectively, of 1995. The Basin Plan identifies beneficial uses and water quality objectives for surface waters in the region, as well as effluent limitations and discharge prohibitions intended to protect those uses. This Order implements the plans, policies, and provisions of the Board's Basin Plan.
27. The beneficial uses of San Pablo Bay and its tributaries are:
 - a. Industrial Service Supply
 - b. Navigation
 - c. Water Contact Recreation
 - d. Non-Contact Recreation
 - e. Ocean Commercial and Sport Fishing
 - f. Wildlife Habitat
 - g. Preservation of Rare and Endangered Species
 - h. Fish Migration and Spawning
 - i. Estuarine Habitat
 - j. Shellfishing
28. The reissuance of waste discharge requirements for these discharges is exempt from the provisions of Chapter 3 (commencing with Section 21100 of Division 13) of the Public Resources Code (CEQA) pursuant to section 13389 of the California Water Code.
29. Under 40 CFR 122.44, "Establishing Limitations, Standards, and Other Permit Conditions", NPDES permits should also include toxic pollutant limitations if the Discharger uses or manufactures a toxic pollutant as an intermediate or final product or byproduct.
30. Effluent limitations and toxic effluent standards established pursuant to sections 301, 304, 306, and 307 of the federal Water Pollution Control Act and amendments thereto are applicable to the discharges herein.
31. Effluent limitation guidelines requiring the application of best practicable control technology currently available (BPT), best conventional pollutant control technology (BCT), and best available technology economically achievable (BAT) were promulgated by the USEPA for some of the pollutants in this discharge. Effluent limitations for pollutants not subject to the USEPA effluent limitation guidelines are based on one of the following: best professional judgment (BPJ) of BPT, BCT or BAT; current plant performance; or, they are water quality-based effluent limitations (WQBELs). The WQBELs are based on the Basin

Plan, other State Plans and policies, or USEPA water quality criteria. The attached fact sheet for this Order includes the specific basis for each effluent limitation.

303(d)-LISTED POLLUTANTS

32. On May 12, 1999, the USEPA approved a revised list of impaired waterbodies prepared by the State. The list (hereinafter referred to as the 303(d) list) was prepared in accordance with section 303(d) of the federal Clean Water Act to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. San Pablo Bay is listed as one of these impaired water bodies. The pollutants impairing San Pablo Bay include copper, mercury, nickel, selenium, exotic species, PCBs total, dioxin and furan compounds, chlordane, DDT, Dieldrin, Diazinon, and dioxin-like PCBs.

TOTAL MAXIMUM DAILY LOADS AND WASTE LOAD ALLOCATIONS

33. Based on the 303(d) list of pollutants impairing San Pablo Bay, the Board plans to adopt Total Maximum Daily Loads (TMDLs) for these pollutants no later than 2010. However future review of the 303(d) list for San Pablo Bay may result in revision of the schedule and/or provide schedules for other pollutants.
34. The TMDLs will establish waste load allocations (WLAs) and load allocations for point sources and non-point sources, respectively, and will result in achieving the water quality standards for the waterbody. The final effluent limitations for this discharge will be based on WLAs that are derived from the TMDLs.
35. The following summarizes the Board's strategy to collect water quality data and to develop TMDLs:
- a. Data collection – The Board will request dischargers collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or water quality objectives. The Board will require dischargers to characterize the pollutant loads from their facilities into the water-quality limited waterbodies. The results will be used in the development of TMDLs, but may also be used to update/revise the 303(d) list and/or change the water quality objectives for the impaired waterbodies including Suisun Bay.
 - b. Funding mechanism – The Board has received, and anticipates continuation to receive, resources from federal and state agencies for the development of TMDLs. To ensure timely development of TMDLs, the Board intends to supplement these resources by allocating development costs among dischargers through the RMP or other appropriate funding mechanisms.

REASONABLE POTENTIAL (RP) ANALYSIS

36. 40 CFR 122.44(d)(1)(ii) requires that when determining whether a discharge causes, has the reasonable potential to cause, or contributes to a receiving water excursion above a narrative or numeric criterion within the State water quality standards, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity

of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.

37. Each toxic/priority pollutant detected in the effluent discharge from the site has been evaluated with respect to its RP to cause or contribute to exceedance of the relevant water quality objective. For the metal constituents, effluent data collected during the period from August 1997 through August 1999 were evaluated. For the organic pollutants including Tributyltin and those analyzed by USEPA Methods 608, 610, 624, and 625, effluent data collected during the period of 1996 and 1999 were evaluated. The number of data used in the RP analysis varies depending on the abundance of available effluent data.
38. In performing the RP analysis, pollutants reported as non-detected were assumed to have concentrations at their detection limits. This assumption is consistent with the intent of the RP evaluation in which anticipated maximum receiving water effluent concentrations are compared with the appropriate narrative or numerical water quality objectives/criteria to determine if the potential of excursions above these objectives/criteria exists.
39. Because of effluent variability, there is always some degree of uncertainty in determining an effluent's impact on the receiving water. The USEPA's Technical Support Document for Water Quality-Based Toxics Control (TSD) of 1991 (USEPA/505/2-90-001) addresses this issue by suggesting the use of a statistical approach, on which the RP analysis for this Order is based. The anticipated maximum effluent concentration of each pollutant is calculated using a 99% confidence level and a 99% probability.
40. The Basin Plan allows dilution, up to 10:1, for discharges to deep water. In a previous dilution study, the Discharger reported that the receiving water for Waste 002 provides an initial dilution of at least 10:1. For pollutants on the 303(d) list as impairing San Pablo Bay, the USEPA has commented that there is a lack of assimilative capacity in the receiving water, and that it is inappropriate to allow any dilution in projecting maximum receiving water concentrations of the 303(d)-listed pollutants. This RP analysis evaluates both situations with and without a 10:1 dilution. Because the waterbody is impaired, no dilution is used in the statistical determination of RP for the 303(d)-listed pollutants.
41. The maximum receiving water concentration of each pollutant is estimated considering the background level, dilution, 303(d) listing, and maximum effluent concentrations. The resulting receiving water concentration is compared to the appropriate water quality objective. When there is no specific numerical water quality objective available in the Basin Plan, the appropriate water quality criterion in the USEPA's National Toxics Rule (NTR) is considered. Criteria specified in the proposed CTR are also reviewed if no applicable criteria are available in NTR. For the purpose of determining RP, a translator value of 1 is assumed for the ratio of dissolved portion vs. total recoverable portion of each metal pollutant. This is consistent with the USEPA's "Metal Translator Guidance for Calculating A Total Recoverable Permit Limit from a Dissolved Criterion" (USEPA 823-B-96-007) of 1996.
42. Tables A through C of this Order summarize the RP analysis results for the toxic and priority pollutants monitored at the site. The following chemical pollutants exhibit RP to cause or contribute to exceedance of the relevant water quality objectives in the receiving water, except for Nickel and Selenium, which would not exhibit reasonable potential if the 10:1 dilution ratio were assumed:

Copper, Cyanide, Lead, Mercury, Silver, Benzene, Endosulfan, Tributyltin, Nickel, and Selenium.

43. For pollutants including Aldrin, Alpha-BHC, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, PAHs, PCB total, Toxaphene, and TCDD Equivalents, the applicable water quality objectives are below the levels that current analytical techniques can measure. Hence, their maximum receiving water concentrations cannot be meaningfully determined by the abovementioned statistical procedures. Because the actual loads of these pollutants discharged from the site are unknown and these chemicals may have been used on-site, it is reasonable to conclude that the RP exists for each of these pollutants.

EFFLUENT LIMITS DELETION

44. Based on the RP results, the following existing effluent limitations are excluded in this Order as they do not pose reasonable potential to cause, or contribute to an excursion above any numeric or narrative water quality objectives:
- a. Daily average effluent concentration limits for Arsenic, Cadmium, Hexavalent Chromium, Zinc, and Pentachlorophenol;
 - b. Monthly average concentration limits for 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Beta-BHC, Chloroform, Dichloromethane, Fluoranthene, Halomethanes, Phenol, Toluene, and 2,4,6-Trichlorophenol; and,
 - c. Both daily and monthly average concentration limits for Gamma-BHC.

BASIS FOR EFFLUENT LIMITATIONS

45. When a discharge causes, has the reasonable potential to cause, or contributes to a receiving water excursion above a narrative or numeric criterion within a State water quality standard, federal law and regulations require the establishment of WQBELs that will protect water quality. Pollutants exhibiting RP in the discharge authorized by this Order are identified in above Findings. The Board plans to adopt TMDLs that will include WLAs for the 303(d)-listed pollutants. When each TMDL is complete, the Board will adopt a WQBEL consistent with the corresponding WLA. If authorized, a time schedule may be included in the revised permit to require compliance with the final WQBEL.
46. In the interim, until final WQBELs are adopted, state and federal antibacksliding and antidegradation policies require that the Board retains effluent concentration limits from the Previous Order to ensure that the waterbody will not be further degraded. In addition to interim concentration limits, interim performance-based mass limits are required to limit the discharge of 303(d)-listed pollutants to their current levels. These interim mass limits are based on recent discharge data. The existing mass limit for selenium must also be maintained as an interim limit according to state and federal antidegradation policies. Where pollutants have existing high detection limits (such as for PCBs total, Chlordane, DDT, Dieldrin, Dioxins and Furans, etc.), interim mass limits are not required because meaningful performance-based limits cannot be calculated for those pollutants with non-detectable concentrations. However, the dischargers, through participation in the RMP, are required to investigate alternative analytical procedures that result in lower detection limits.

47. In the event that a TMDL is not adopted by by this Regional Board by 2010, and an extension of the schedule has not been granted by the USEPA, the Board will impose one of the following alternative final limits:
- a. For a 303(d)-listed bioaccumulative pollutant, the final alternative limit will be no net loading (No net loading means that the actual loading from the discharge must be offset by at least equivalent loading of the same pollutant achieved through mass offset). In the absence of a TMDL, any loading to the impaired waterbody has the reasonable potential to cause or contribute to an excursion of the narrative toxicity criterion. Additionally, the existing numeric objective may not be adequate to ensure safe levels of the pollutant in sediment and/or fish. This is because in the case of fish tissue, the bioconcentration factor (BCF), on which the criterion was based, was measured in the laboratory and, therefore, reflects uptake from the water only. Bioaccumulative factors (BAFs) on the other hand, are measured in the field where the uptake in fish is through both food and water. Thus, the bioaccumulation rate in the system may be greater than the bioconcentration rate used to calculate the national water quality, which is based on a laboratory-derived BCF. Another reason that the existing water quality objectives may not be adequate is that the criteria they are based on do not always account for routes of exposure, for site-specific circumstances that may render the pollutant more bioavailable, for accumulation in sediment, or for concentrating effects resulting from evaporation.
 - b. For a 303(d)-listed non-bioaccumulative pollutant, the alternative final mass limit will be based on water quality objectives applied at the end of the discharge pipe.

COLIFORM EFFLUENT LIMITATION

48. The Discharger is concerned that non-enteric organisms in its E-002 discharge may result in a false-positive response in the total coliform test. The detection of elevated concentrations of total coliform may not fully represent the actual threat to water quality posed by waste of fecal origin. As such, the Discharger requested to be allowed to conduct a study in the future to evaluate the feasibility of substituting the total coliform limit with a fecal coliform limit for the E-002 discharge. This Order contains an optional provision for conducting such a feasibility study.

WASTE MINIMIZATION

49. Pollutants listed on the 303(d) list or identified in Findings 42 and 43 have reasonable potential to cause or contribute to exceedance of State water quality standards. To help achieve water quality objectives, the Discharger shall implement a waste minimization plan in addition to complying with the effluent limitations. This Order contains a provision requiring the Discharger to submit and implement a waste minimization plan for these pollutants.

OPTIONAL MASS OFFSET

50. This Order contains requirements to prevent further degradation of the impaired waterbody. Such requirements include the adoption of mass limits that are based on the treatment plant performance, provisions for aggressive source control and pollution prevention, feasibility studies for wastewater reclamation, and treatment plant optimization. After implementing these efforts, the Discharger may find that further net reductions of the total mass loadings of

the 303(d)-listed pollutants to the receiving water can be achieved through a mass offset program. This Order includes an optional provision for a mass offset program.

NOTIFICATION

51. The Board notified the Discharger and interested agencies and persons of its intent to re-issue waste discharge requirements for the discharge, and has provided them with an opportunity for a public hearing and to submit their written views and recommendations.
52. The Board, in a public hearing, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Discharger, in order to meet the provisions of Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Prohibitions

1. The discharge of treated Waste 002 to San Pablo Bay at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1 is prohibited.
2. Discharges of water, materials, thermal wastes, elevated temperature wastes, toxic wastes, deleterious substances, or wastes other than those authorized by this Order, to a storm drain system, tributaries of San Pablo Bay, or waters of the State are prohibited.

B. Effluent Limitations

1. The discharge of Waste 002 shall not have a pH value less than 6.0 nor greater than 9.0.
2. The median of 5 consecutive samples collected from the discharge of Waste 002 shall not have total coliform bacteria exceeded 240 MPN/100ml. Any single sample shall not exceed 10,000 MPN/100ml.
3. The discharge of Waste 002 shall not have residual chlorine greater than 0.0 mg/l.
4. The discharge of Waste 002 shall meet the following toxicity limitations:

a. Acute Toxicity:

The survival of test fishes in parallel 96-hour flow-through bioassays of Waste 002 as discharged shall be an eleven-sample³ median value of not less than 90-percent survival, and an eleven-sample 90-percentile⁴ value of not less than 70-percent survival. Test fishes shall be specified by in the Self-Monitoring Program. Parallel tests with two species of fish are considered two separate tests.

b. Chronic Toxicity:

³ A bioassay test showing survival of less than 90 percent represents a violation of this effluent limitation, if five or more of the past ten or less bioassay tests show less than 90 percent survival.

⁴ A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or less tests shows less than 70 percent survival.

An eleven-sample median value⁵ of 10 TUC⁶, and a 90-percentile value of 20 TUC⁷.

5. The discharge of Waste 002 containing constituents in excess of the following limitations is prohibited:

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD (5day @ 20°C)	lb/day	830	1,494
	kg/day	377	679
TSS	lb/day	664	1,041
	kg/day	302	473
COD	lb/day	5,794	11,165
	kg/day	2,634	5,075
Oil & Grease	lb/day	241	453
	kg/day	109	206
Phenolic compounds	lb/day	4.4	11.2
	kg/day	2	5.1
Ammonia as N	lb/day	453	996
	kg/day	206	453
Sulfide	lb/day	4.4	9.8
	kg/day	2	4.5
Total Chromium	lb/day	5.1	14.7
	kg/day	2.3	6.7
Hexavalent Chromium ⁸	lb/day	0.4	0.9
	kg/day	0.18	0.41
Settleable Solids	ml/l/hr	0.1	0.2

6. In addition to the monthly average and daily maximum pollutant mass allowances shown in B.5 above, allocations for pollutants attributable to storm water runoff and ballast

⁵ A test sample showing chronic toxicity greater than 10 TUC represents consistent toxicity and a violation of this limitation, if five or more of the past ten or less tests show toxicity greater than 10 TUC.

⁶ A TUC equals 100/NOEL. The NOEL is the no observable effect level, determined from IC, EC, or NOEC values. These terms and their usage in determining compliance with the limitations are defined in the **Attachment B** of this Order. The NOEL shall be based on a critical life stage test using the most sensitive test species as specified by the Executive Officer. The Executive Officer may specify two compliance species if test data indicate that there is alternating sensitivity between the two species. If two compliance test species are specified, compliance shall be based on the maximum TUC value for the discharge sample based on a comparison of TUC values obtained through concurrent testing of the two species.

⁷ A test sample showing chronic toxicity greater than 20 TUC represents consistent toxicity and a violation of this limitation if one or more of the past ten or less samples shows toxicity greater than 20 TUC.

⁸ The Discharger may, at its option, meet this limitation as total chromium.

water discharged as part of Waste 002 are permitted in accordance with the following schedules:

STORM WATER RUNOFF ALLOCATION

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD ₅	mg/l	26	48
TSS	mg/l	21	33
COD	mg/l	180	360
Oil & Grease	mg/l	8	15
Phenolic Compounds	mg/l	0.17	0.35
Total Chromium	mg/l	0.21	0.60
Hexavalent Chromium	mg/l	0.028	0.062

BALLAST WATER ALLOCATION

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD ₅	mg/l	26	48
TSS	mg/l	21	33
COD	mg/l	240	470
Oil & Grease	mg/l	8	15
pH	within the range of 6.0 to 9.0		

The total effluent limitation is the sum of the storm water runoff allocation, the ballast water allocation, and the mass limits contained in B.5. The Discharger shall compute the total effluent limitation (both daily maximum and monthly average) on a monthly basis as shown in Part B of the Self-Monitoring Program.

7. The discharge of Waste 002 containing constituents in excess of the following limitations is prohibited:

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Cyanide ⁹	µg/l ¹⁰	--	25

⁹ The Discharger may, at its option, meet the limit for cyanide as free cyanide, simple alkali metal cyanides, and weakly complex organometallic cyanides. These forms of cyanide shall be measured using the Weak Acid Dissociable Cyanide method described in the most recent edition of Standard Methods, or another method approved by the Executive Officer.

¹⁰ µg/l: microgram per liter.

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Lead	µg/l	--	53
Silver	µg/l	--	23
Aldrin	ng/l ¹¹	1.4	--
Alpha-BHC	µg/l	0.13	--
Benzene	mg/l	0.71	--
Endosulfan	µg/l	--	0.087
Endrin	µg/l	--	0.023
Heptachlor	ng/l	2.1	36
Heptachlor Epoxide	ng/l	1.1	36
Hexachlorobenzene	ng/l	7.7	--
PAHs ¹²	µg/l	0.49	150
Toxaphene	ng/l	--	2
Tributyltin	ng/l	50	--

8. The discharge of Waste 002 containing constituents in excess of the following interim limitations is prohibited:

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Copper	µg/l	--	37
Mercury	µg/l	0.21	1
Nickel	µg/l	--	53
Selenium	µg/l	--	50
Chlordane	ng/l	0.81	40
DDT	ng/l	6	10
Dieldrin	ng/l	1.4	19
TCDD Equivalents ¹³	pg/l ¹³	0.14	--
PCB total ¹⁴	µg/l	0.0007	0.3

		<u>Running Annual Average¹⁵</u>
Copper	lb/month	21.5
Mercury	lb/month	0.137
Nickel	lb/month	5.62
Selenium	lb/day	0.85

¹¹ ng/l: nanogram per liter (equivalent to 0.001 µg/l).

¹² See Attachment C for definition of terms.

¹³ pg/l: picogram per liter.

¹⁴ See Attachment C for definition of terms.

¹⁵ Mass limit is based on running annual average mass load. Running annual averages shall be calculated by taking the arithmetic average of the current monthly mass loading value (see sample calculation below) and the previous 11-month' values.

Sample Calculation: If a pollutant X is sampled twice per month, the monthly average daily mass load is: $= \frac{1}{2} (\sum F_i \times C_i)$,

And the monthly mass load is given by:

$$= [\frac{1}{2} (\sum F_i \times C_i)] \times (365 \text{ days/year}) / (12 \text{ months/year})$$

Where F_i is the daily average flow rate of the day when the sample was collected and C_i is the concentration of the pollutant X detected in the effluent.

Compliance of these mass limits will be required starting from the next calendar month upon the adoption of this Order.

C. Non-Contact Once-Through Salt Cooling Water Limitations

1. The discharge of Wastes 001 and 003 shall not have pH value less than 6.5 nor greater than 8.5.
2. The maximum temperature of Wastes 001 and 003 as discharged shall not exceed 110°F.
3. The discharge of Wastes 001 and 003 shall not contain a total organic carbon concentration above intake levels in excess of 5 mg/l.
4. The discharge of Wastes 001 and 003 shall not contain residual chlorine concentrations greater than 0.0 mg/l.

D. Storm Water Limitations

1. The discharge of Waste 004 containing constituents in excess of the following limits is prohibited:

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Oil & Grease	mg/l	daily maximum of 15
TOC	mg/l	daily maximum of 110
pH	standard units	6.5 to 8.5
Visible oil	---	none observed
Visible color	---	none observed

E. Receiving Water Limitations

1. The discharge shall not cause the following conditions to exist in waters of the State at any place:
 - a. Floating, suspended or deposited macroscopic particulate matter or foam;
 - b. Alteration of temperature, turbidity or apparent color beyond present natural background levels;
 - c. Visible, floating, suspended or deposited oil or other products of petroleum origin;
 - d. Bottom deposits or aquatic growths; and
 - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl or render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge shall not cause nuisance, or adversely affect beneficial uses of the receiving water.
3. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.

4. The discharge shall not cause the following limits to be exceeded in waters of the State at any place within one foot of the water surface:
 - a. pH: the pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.
 - b. Dissolved Oxygen: the concentration of dissolved oxygen shall not be less than 5.0 mg/l any time, and the median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
 - c. Dissolved sulfide: 0.1 mg/l maximum
 - d. Un-ionized ammonia (as N): annual median 0.025 mg/l
maximum at any time 0.16 mg/l
5. The discharge shall not cause a violation of any applicable water quality standards for receiving waters adopted by the Board or State Board. If more stringent applicable water quality standards are promulgated or approved pursuant to section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify the Order in accordance with such standards

F. Provisions

1. Effective Date of Permit
This Order shall serve as a NPDES permit pursuant to section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall take effect at the end of ten days from the date of hearing provided that the Regional Administrator of the USEPA has no objections. If the Regional Administrator objects to its issuance, this Order shall not become effective until such objection is withdrawn.
2. Permit Modification
Pursuant to USEPA regulations 40 CFR 122.44, 122.62, and 124.5, this Order may be modified prior to the expiration date to include effluent limits for other toxic or pollutants if monitoring results of these pollutants indicate that either reasonable potentials of exceeding the corresponding site-specific water quality objectives or significant amount of these pollutants exist in the discharge resulting in a threat of impacts to the water quality or beneficial uses of San Pablo Bay exist.
3. Self-Monitoring Program
This Order includes all items of the attached Self-Monitoring Program as adopted by the Board and as may be amended pursuant to USEPA regulations 40 CFR 122.62, 122.63, and 124.5.
4. Standard Provisions and Reporting
This Order includes all items, except as mentioned otherwise, of the attached "Standard Provisions and Reporting Requirements" of August 1993.
5. Compliance with Acute Toxicity Effluent Limitations
Compliance with the acute toxicity limitations in Effluent Limitations B.4.a of this Order

shall be evaluated by measuring the survival rate of both fish species of fathead minnow and rainbow trout in a flow-through 96-hour bioassay. Each test consists of exposing ten fish of each species to undiluted effluent for 96 hours, and each fish represents a single sample. The two fish species shall be tested concurrently. Toxicity tests shall be performed according to protocols approved by the USEPA or equivalent alternatives acceptable to the Executive Officer.

6. Compliance with Chronic Toxicity Limitations

Definitions of terms used in the chronic toxicity effluent limitations are included in **Attachment B** of this Order. Compliance with chronic toxicity in Effluent Limitation B.4.b of this Order shall be evaluated by measuring the critical life stage toxicity tests for aquatic species as specified in the attached Self-Monitoring Report. **Attachment C** of this Order identifies the Critical Life Stage Toxicity Tests used in the chronic toxicity monitoring.

7. Toxicity Identification Evaluation / Toxicity Reduction Evaluation

If a violation of the chronic toxicity effluent limitation occurs, the Discharger shall conduct a chronic toxicity reduction evaluation (TRE), which shall initially involve a toxic identification evaluation (TIE). The TIE shall be in accordance with a work plan acceptable to the Executive Officer. The TIE shall be initiated within 30 days of the date of violation. The objective of the TIE shall be to identify the chemical or combination of chemicals that are causing the observed toxicity. The Discharger shall use currently available TIE methodologies. As toxic constituents are identified or characterized, the Discharger shall continue the TRE and take all reasonable steps to determine the source(s) of the toxic constituent(s) and evaluate alternative strategies for reducing or eliminating the constituent(s) from the discharge, and reduce toxicity to the required level. The Board recognizes that chronic toxicity may be episodic, and that identification of causes of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Board will be based in part on the Discharger's actions in identifying and reducing sources of consistent toxicity.

8. Dioxins and Furans Limit Reopener

Pursuant to USEPA regulations 40 CFR 122.44, 122.62, and 124.5, the limitation for TCDD Equivalents specified in this Order may be modified prior to the expiration date to make the requirements consistent with the Standards and policies that will be promulgated in the USEPA's CTR and in the State Board's Plans.

9. Optional Fecal Coliform Study

If the Discharger wishes to pursue a feasibility study to replace the total coliform limit at Outfall E-002 with a fecal coliform limit, it should submit a letter request to the Executive Officer. A written proposal should also be included with the request letter for the Executive Officer's approval. The proposal should contain, at minimum, the following components:

- a. A summary of existing source controls for total coliform, fecal coliform, and enterococci in treated Waste 002;
- b. A proposal for beneficial uses survey at or near Outfall E-002;
- c. A bacteriological quality monitoring program for the receiving water and treated Waste 002;
- d. A methodology to show that the use of fecal coliform is better measurement than total coliform in protecting the beneficial uses of the receiving water; and

- e. A schedule for the implementation and reporting of the approved study.

The Board may amend this Order if a fecal coliform limitation is shown to be more appropriate than the total coliform limitation in protecting the beneficial uses of the receiving water.

10. Regional Monitoring Program

The Discharger shall continue to participate in the Regional Monitoring Program (RMP) for trace substances in San Francisco Bay in lieu of more extensive effluent and receiving water self-monitoring requirements that may be imposed in the USEPA's CTR and in the State Board's Plans.

11. Screening Phase Compliance Monitoring

The Discharger shall conduct screening phase compliance monitoring in accordance with a proposal submitted to and acceptable to the Executive Officer, as part of its ETCP. The proposal shall contain, at a minimum, the elements specified in **Attachment C** of this Order. The purpose of the screening is to determine the most sensitive test species for subsequent compliance monitoring for chronic toxicity. Screening phase compliance monitoring shall be conducted under either of the following conditions:

- a. Subsequent to any significant change in the nature of the treatment plant effluent through changes in sources or treatment, except those changes resulting from reduction in pollutant concentrations attributable to pretreatment, source control, and waste minimization efforts; or
- b. Prior to permit reissuance, except when the Discharger is conducting a TIE/TRE, screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

12. Submittal of Updated Plans

The Discharger shall submit no later than August 1, 2000 a copy of updated Stormwater Pollution Prevention Plan (SWPPP) and Best Management Practices Plan (BMPP) to the Executive Officer for approval. Both the SWPPP and BMPP shall cover the Rodeo Refinery and the Terminal. The SWPPP shall describe site-specific management practices for minimizing stormwater runoff from being contaminated, and for preventing contaminated stormwater runoff from being discharged directly to waters of the State.

The BMPP portion should entail site-specific plans and procedures implemented and/or to be implemented to prevent hazardous waste/material from being discharged to waters of the State. The updated BMPP shall be consistent with the requirements of 40 CFR 125, Subpart K, and the general guidance contained in the "NPDES Best Management Guidance Document", USEPA Report No. 600/9-79-045, December 1979 (revised June 1981). In particular, a risk assessment of each area identified by the Discharger shall be performed to determine the potential of hazardous waste/material discharge to surface waters.

For the purpose of the SWPPP and BMPP, the Discharger shall include an updated drainage map for the facility; identify on a map of appropriate scale the areas which contribute runoff to the permitted discharge points; describe the activities in each area

and the potential for contamination of stormwater runoff and discharge of hazardous waste/material; and, address the feasibility for containment and/or treatment of the stormwater. The SWPPP and BMPP may include time schedules for the completion of management practices and procedures. The Discharger shall begin implementing the SWPPP and BMPP within 10 calendar days of approval, unless otherwise directed. The SWPPP and BMPP shall then be reviewed by July 1, 2001, and then annually thereafter. Updated information shall be submitted within 30 days of revision.

13. Contingency Plan Update

The Discharger shall submit no later than September 15, 2000 an updated contingency plan to the Executive Officer for approval. The Contingency Plan shall be consistent with the requirements of Board Resolution No. 74-10, and be **site-specific** to the Rodeo Refinery and the Terminal. The Discharger shall begin implementing the Contingency Plan within 10 calendar days of approval, unless otherwise directed. The contingency plan shall be reviewed at the same time with the SWPPP and BMPP. Updated information shall be submitted within 30 days of revision. Discharging pollutants in violation of this Order where the Discharger failed to develop and implement an approved contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

14. Submittal and Implementation of Waste Minimization Plan (WMP)

The Discharger shall submit, no later than June 1, 2000, a WMP acceptable to the Executive Officer for the reduction in the use or generation of pollutants that are on the 303(d) list and identified in the Findings 42 and 43. "Waste Minimization" means any action that causes a net reduction in the use of a hazardous substance or other pollutant that is discharged into water and includes any of the following: input change, operational improvement, production process change, or product reformulation. The Discharger shall begin implementation of the WMP within 30 days of the Executive Officer's approval of the WMP.

15. Reporting Requirements for WMP

Progress reports shall be submitted commencing with the Discharger's Self-Monitoring Report that corresponds to three months after implementation begins, and then quarterly thereafter, until implementation is concluded. The annual monitoring report shall include a section that summarizes the implementation progress of the WMP. This section shall include a discussion of program activities; an evaluation of the effectiveness and deficiencies of WMP; the resources expended; and, proposed changes to the existing WMP and time schedules. A final report of completion, acceptable to the Executive Officer, shall be submitted within 45 days after all the implementation work has been completed.

16. Submittal of Annual Refinery Throughput Data

The Discharger shall submit annual refinery throughput data to the Executive Officer by February 1 each year. This requirement is based on the consideration that the (i) refinery throughputs shown in the original application (73,650 bbl/d) and revised Form 2C (79,950 bbl/d) are different, and (ii) the production data for the years of 1994 and 1995 were not available in the application. Should the data indicate that the actual long-term refinery throughput is significantly lower than the 79,950 bbl/d, the technology-based limits specified in Effluent Limitation B.5 above shall be modified in accordance with the USEPA's Effluent Limitation Guidelines and Standards, 40 CFR 419 Subpart B.

17. Optional Mass Offset

If the Discharger wishes to pursue a mass offset program, a mass offset plan for reducing the 303(d)-listed pollutants to the same receiving waterbody needs to be submitted for Board approval. This Order may be modified by the Board to allow an acceptable mass offset program.

18. Compliance Schedule for Detection Limited Pollutants

If the analytical methods for some pollutants (e.g. PCBs, TCDD Equivalents) are improved or new method developed which improves (or lowers) the analytical quantification limit beyond those indicated in the Self-Monitoring Program, and the Discharger using the new or improved methods finds the above pollutants present at levels above their effluent limits specified in B.8, but below the former analytical quantification limits established, the Discharger shall notify the Executive Officer, accelerate monitoring for the pollutant of concern to characterize the discharge, and within 60 days develop and initiate a source identification and reduction investigation acceptable to the Executive Officer. Until this Order is revised, compliance with the B.8 effluent limitations shall be determined at the former analytical quantification limits specified in the Self-Monitoring Program.

19. Signatory and Certification

All applications, reports, or information submitted to the Board shall be signed and certified pursuant to the requirements of 40 CFR 122.41(k).

20. Change of Ownership/Business Operation

In the event of any change in control or ownership of the site, business operation, or waste, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this office. Requirements established in Standard Provisions E.4 of August 1993 shall be complied by the Discharger and the succeeding site owner or operator.

21. Notification of Changes

Pursuant to the requirements of 40 CFR 122.42(a) the Discharger must notify the Board as soon as it knows or has reason to believe (1) that it has begun or expect to begin, use or manufacture a toxic pollutant not reported in the permit application, or (2) a discharge of toxic pollutant not limited by this Order has occurred, or will occur, in concentrations that exceed the specified limits in 40 CFR 122.42(a).

22. Consistent Use of Lowest Detection Limits

The Discharger shall consistently use the lowest possible detection limits commercially available to analyze all required chemical parameters in its waste discharges.

23. Rescission of Previous Order

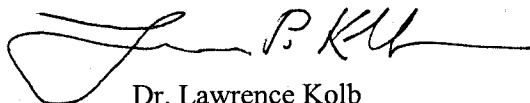
The requirements prescribed by this Order supersede the requirements specified by previous Order Nos. 94-129.

24. Permit Expiration

This Order expires on March 15, 2005, and the Discharger must file a Report of Waste Discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, not later than 180 days in advance of such date as application for the reissuance of waste discharge requirements.

The Discharger shall immediately comply with all limitations, prohibitions, and other provisions of this Order upon its adoption by the Board.

I, Lawrence Kolb, Acting Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on March 15, 2000

A handwritten signature in black ink, appearing to read 'L. Kolb', is written over a horizontal line.

Dr. Lawrence Kolb
Acting Executive Officer

Attachments:

- Figure 1. Site Map
- Figure 2. Waste Water Treatment Schematic

- A. Chronic Toxicity Definition of Terms
- B. Chronic Toxicity Screening Phase Monitoring Requirements
- C. Definition of Terms for Chemical Pollutants
- D. Self-Monitoring Program, Parts A (August 1993) and B
- E. Standard Provisions, and Reporting Requirements dated August 1993

ATTACHMENT A

DEFINITION OF NO OBSERVED EFFECT LEVEL

No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25} . If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing", response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Kärber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25% of the test organisms.

Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal, non-quantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25% reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as USEPA's Bootstrap Procedure.

No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

ATTACHMENT B

SCREENING PHASE MONITORING REQUIREMENTS

- A. The discharger shall perform screening phase compliance monitoring:
 - 1 Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, expect those changes resulting from reductions in pollutant concentrations attributable to pretreatment, source control, and waste minimization efforts; or
 - 2 Prior to permit re-issuance. Screening phase monitoring data shall be included in the NPDES permit application for re-issuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.
- B. Design of the screening phase shall, at a minimum, consist of the following elements:
 - 1 Use of test species specified in Table B-1 and B-2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer;
 - 2 Two stages:
 - a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Table B-3 (attached); and
 - b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.
 - c. Appropriate controls; and
 - d. Concurrent reference toxicant tests.
- C. The Discharger shall submit a screening phase proposal to the Executive Officer for approval. The proposal shall address each of the elements listed above.

TABLE B-1

CRITICAL LIFE STAGE TOXICITY TESTS FOR ESTUARINE WATERS

SPECIEIS	EFFECT	TEST DURATION	REFERENCE
alga (<u>Skeletonema Costatum</u>) (<u>Thalassiosira pseudonana</u>)	growth rate	4 days	1
red alga (<u>Champia parvula</u>)	number of cystocarps	7-9 days	3
giant kelp (<u>Macrocystis pyrifera</u>)	percent germination; germ tube length	48 hours	2
abalone (<u>Haliotis rufescens</u>)	abnormal shell development	48 hours	2
oyster (<u>Crassostree gigas</u>) mussel (<u>Mytilus edulis</u>) percent survival	abnormal shell development;	48 hours	2
Echinoderms (urchins - <u>Strongylocentrotus</u> <u>purpuratus</u> , <u>S. franciscanus</u>); (sand dollar - <u>Dendraster</u> <u>excentricus</u>)	percent fertilization	1 hour	2
shrimp (<u>Mysidopsis bahia</u>)	percent survival; growth	7 days	3
shrimp (<u>Holmesimysis bahia</u>)	percent survival; growth	7 days	2
topsmelt (<u>Atherinops affinis</u>)	percent survival; growth	7 days	2
silversides (<u>Menidia berylina</u>)	larval growth rate; percent survival	7 days	3

TOXICITY TEST REFERENCES

- 1 American Society for Testing Materials (ASTM). 1990. Standard Guide for conducting static 96-hour toxicity tests with microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.
- 2 Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms. USEPA/600/R-95/136. August 1995
- 3 Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. USEPA-600/4-90/003. July 1994

TABLE B-2

CRITICAL LIFE STAGE TOXICITY TESTS FOR FRESH WATERS

TEST SPECIES	EFFECT	DURATION	REFERENCE
fathead minnow (<u>Pimephales promelas</u>)	survival; growth rate	7 days	4
water flea (<u>Ceriodaphnia dubia</u>)	survival; number of young	7 days	4
alga (<u>Selenastrum capricornutum</u>)	cell divisions rate	4 days	4

TOXICITY TEST REFERENCE

- 1 Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Third edition. USEPA/600/4-91/002. July 1994

TABLE B-3

TOXICITY TEST REQUIREMENTS FOR STAGE ONE SCREENING PHASE

REQUIREMENTS	RECEIVING WATER CHARACTERISTICS		
	DISCHARGES TO COAST	DISCHARGES TO SAN FRANCISCO BAY ²	
	Ocean	Marine	Freshwater
Taxonomic Diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type			
Freshwater ¹	0	1 or 2	3
Marine	4	3 or 4	0
Total number of tests	4	5	3

¹. The fresh water species may be substituted with marine species if:

- 1) the salinity of the effluent is above 5 parts per thousand (ppt) greater than 75% of the time, or
- 2) the ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

². Marine refers to receiving water salinities greater than 5 ppt at least 75% of the time during a normal water year. Fresh refers to receiving water with salinities less than 5 ppt at least 75% of the time during a normal water year.

ATTACHMENT C

DEFINITION OF TERMS FOR CHEMICAL CONSTITUENTS

Polynuclear Aromatic Hydrocarbons (PAHs) shall mean the following constituents, each of which shall be limited individually at 0.49 µg/l as indicated below.

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average Effluent Limit</u>
Benzo(a)Anthracene	µg/l	0.49
3,4-Benzo(b)Fluoranthene	µg/l	0.49
Benzo(k)Fluoranthene	µg/l	0.49
Benzo(g,h,i)Perylene	µg/l	0.49
Benzo(a)Pyrene	µg/l	0.49
Chrysene	µg/l	0.49
Dibenz(a,h)Anthracene	µg/l	0.49
Indeno(1,2,3-cd)Pyrene	µg/l	0.49

Polychlorinated Biphenyls (PCBs) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

TCDD Equivalents shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity equivalence factors (TEFs), as shown in the table below. (Note: These TEFs may be revised if new or updated information is available, and revision is considered appropriate.)

<u>Isomer Group</u>	<u>Toxicity Equi- valence Factor</u>
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8-tetra CDF	0.1
1,2,3,7,8-penta CDF	0.05
2,3,4,7,8-penta CDF	0.5
2,3,7,8-hexa CDFs	0.1
2,3,7,8-hepta CDFs	0.01
octa CDF	0.001

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

TOSCO REFINING COMPANY
SAN FRANCISCO AREA REFINERY
AT
RODEO
CONTRA COSTA COUNTY

NPDES NO. CA0005053

ORDER NO. 00-015

CONSISTS OF

PART A (dated August 1993)

AND

PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. Influent

<u>Station</u>	<u>Description</u>
I-001	At any point in the saltwater pump intake that delivers San Pablo Bay water to the Refinery, prior to any treatment or use for cooling or processing.

B. Effluent

<u>Station</u>	<u>Description</u>
E-001	At any point in the Waste 001 outfall between the point of discharge and the point where all wastes tributary thereto are present such that the sample is representative of the treated wastewater effluent.
E-002	At any point in the Waste 002 outfall leading to the deepwater diffuser, where all wastes tributary thereto are present such that the sample is representative of the treated wastewater effluent.
E-003	At any point in the Waste 003 outfall between the point of discharge and the point where all wastes tributary thereto are present such that the sample is representative of the treated wastewater effluent.
E-004	At a point in each source area resulting in the discharge of Waste 004, not more than 5 feet from the point(s) of discharge. Exact sampling point for each discharge area should be determined on-site.

C. Receiving Waters

<u>Station</u>	<u>Description</u>
C-R-1	At a point in San Pablo Bay, located not more than 600 feet west of Outfall E-001, where representative ambient temperature and water quality of the receiving water can be measured.
C-R-3	At a point in San Pablo Bay, located not more than 1,000 feet west of Outfall E-003, where representative ambient temperature and water quality of the receiving water can be measured.
C-1	At a point in San Pablo Bay. Exact location is to be determined.

- C-2 At a point in San Pablo Bay, located over the geometric center of the deepwater diffusers for Waste 002.
- C-3 At a point in San Pablo Bay. Exact location is to be determined.
- D. Rainfall

<u>Station</u>	<u>Description</u>
R-1	The nearest official National Weather Service rainfall station or other station acceptable to the Executive Officer.

II. CHRONIC TOXICITY MONITORING AND REPORTING REQUIREMENT

A. Test Species and Frequency

The Discharger shall collect 24-hour composite samples at E-002 on consecutive days for critical life stage toxicity testing as indicated below:

<u>Test Species</u>	<u>Frequency</u>
Mysidopsis bahia	once every six month

B. Conditions for Accelerated Monitoring

The Discharger shall accelerate the frequency of monitoring to monthly (or as otherwise specified by the Executive Officer) when there is an exceedance of either of the following conditions:

1. Three-sample median value of 10 TUc, or
2. Single-sample maximum value of 20 TUc.

C. Methodology

Sample collection, handling, and preservation shall be in accordance with the USEPA's protocols. The test methodology used shall be in accordance with the references cited in this Order, or as approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.

D. Dilution Series

The Discharger shall conduct tests at 100%, 50%, 25%, 10%, 5%, and 2.5%. The "%" represents percent effluent as discharged. The 100% dilution may be omitted if the marine test species specified is sensitive to artificial sea salts.

E. Reporting Requirements

For each test, the current reporting period shall include at minimum the following:

1. Dates of sampling and test initiation;
2. Test species
3. End point values for each dilution (e.g. number of young, growth rate, and percent survival)
4. NOEC value(s) in percent effluent
5. IC₁₅, IC₂₅, IC₄₀, and IC₅₀ values (or EC₁₅, EC₂₅... etc.) in percent effluent
6. TUc values (100/NOEC, 100/IC₂₅, and 100/EC₂₅)

7. Mean % mortality (and standard deviation) after 96 hours in 100% effluent
8. NOEC and values for reference toxicant test(s)
9. IC₅₀ or EC₅₀ value(s) for reference toxicant test(s) and
10. Available water quality measurement for each test (e.g. pH, dissolved oxygen, temperature conductivity, hardness, salinity, ammonia)

III. OTHER SELF MONITORING REPORTING REQUIREMENTS

A. Compliance Summary

The transmittal letter of each self-monitoring report shall include summary tables of (i) chronic toxicity data from at least eleven of the most recent samples; (ii) bioassay acute toxicity data from at least eleven of the most recent samples; (iii) total coliform data from at least five of the most recent samples preceding the current month; and (iv) annual running average mass loads for copper, mercury, nickel, and selenium, respectively. The information in the table summary for the chronic toxicity data shall include the items listed above under Section A, item numbers 1, 3, 5, 6, 7, and 8.

B. Reporting Data in Electronic Format

The Discharger shall report all monitoring results in electronic reporting format approved by the Executive Officer. Chronic toxicity data shall be submitted in electronic reporting format specified in "Suggested Standard Reporting Requirements for Monitoring Chronic Toxicity", February 1993, SWRCB. Bioassay acute toxicity raw data shall also be submitted in electronic format. The chronic and acute toxicity test data shall be submitted in high-density double-sided 3.5-inch floppy diskettes, or other electronic format approved by the Executive Officer. Data shall be submitted not later than *February 15, May 15, August 15, and December 15, respectively, of each year.*

C. Dioxins and Furans Data

The Discharger shall report their Dioxins and Furans data using both the ITEF89 and the WHO98 methodologies.

D. Rainfall

The Discharger shall record the rainfall on each day of the month.

E. Visual Observations of Storm Water Discharge

The Discharger shall conduct visual observations of the all storm water discharge locations on at least one storm event per month that produces a significant storm water discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor. "Significant storm water discharge" is a continuous discharge of storm water for a minimum of one hour, or an intermittent discharge of storm water for a minimum of three hours in a 12-hour period.

F. Form A

The Discharger shall use the method described in attached Form A to determine the storm water runoff/ballast water allocation (daily & monthly) for its discharge. The allocation results shall be submitted with the monthly self-monitoring report. The daily maximum allocation must be computed for each day Waste 002 is monitored.

G. Ballast Water Allocations

The Discharger shall meter and record the daily volume of ballast water that was treated and discharged as part of Waste 002 for the reporting period. The 30-day average shall

be the sum of the daily values in a calendar month divided by the number of days in that month. Ballast-water allocations shall be calculated by multiplying the volume of ballast water (determined above in section E) by the appropriate concentrations listed under Effluent Limitation B.6 in this Order.

H. Information Related to Organic and Metallic Pollutants

The Discharger shall retain and submit (when requested by the Executive Officer) the following information related to the monitoring program for organic and metallic pollutants.

1. Description of sample stations, times, and procedures.
2. Description of sample containers, storage, and holding time prior to analysis.
3. Quality assurance procedures together with any test results for replicate samples, sample blanks, and any quality assurance tests, and the recovery percentages for the internal and surrogate standards.

I. Method Detection Limits

The Discharger shall submit in the monthly self-monitoring report the metallic & organic test results together with the detection limits (including unidentified peaks). All unidentified (non-Priority Pollutants) peaks detected in USEPA's 624 and 625 test methods shall be identified and semi-quantified. Hydrocarbons detected at < 10 microgram per liter ($\mu\text{g/l}$) based on the nearest internal standard may be appropriately grouped and identified together as aliphatic hydrocarbons, aromatic hydrocarbons, and unsaturated hydrocarbons. All other hydrocarbons detected at > 10 $\mu\text{g/l}$ based on the nearest internal standard shall be identified and semi-quantified.

J. Maps

An updated legible map showing the locations of all ponds, treatment facilities, and points of waste discharge shall be submitted, if changes were made.

IV. SCHEDULE OF SAMPLING AND ANALYSIS

A. Sampling Schedule

The schedule of sampling and analysis shall be that given in Table 1 of this Self-Monitoring Program.

B. Sampling Protocols

Sample collection, storage, and analyses shall be performed according to the latest 40 CFR 136 or other methods approved and specified by the Executive Officer.

V. MODIFICATIONS TO PART A

A. Paragraph C.2.a.

Paragraph C.2.a shall be modified as follows:

“Composite samples of effluent shall be collected on random weekdays and on any day when substantial changes in flow occur during dry weather conditions.”

B. Paragraph C.2.d.

The last sentence of Paragraph C.2.d. shall be modified as follows:

"... the sampling frequency shall be increased to daily until the additional sampling shows that the most recent monthly average is in compliance with the monthly average limit."

C. Paragraph F.4

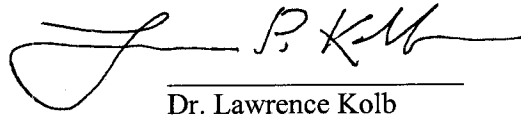
The first sentence shall be modified as follows:

"Self-Monitoring Reports shall be filed regularly for each calendar month (unless specified otherwise) and the Board should receive the written report no later than the fifteenth day of the following month..."

I, Lawrence Kolb, Acting Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in the Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in the Board's Order No. 00-015.
2. Is effective on the date shown below.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger, and revisions will be ordered by the Executive Officer.

March 15, 2000
Effective Date



Dr. Lawrence Kolb
Acting Executive Officer

Attachments:

Table 1 - Schedule of Sampling, Measurement and Analysis
Form A - Storm water/Ballast Water Allocation Procedure

TABLE 1 OF SELF-MONITORING PROGRAM, PART B
SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

<u>Station</u>	<u>Constituent</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency of Analysis</u>
E-002	Flow	MGD	Continuous	Continuous
	BOD ₅	mg/l	Composite	Monthly
		kg/day		
	TSS	mg/l	Composite	Monthly
		kg/day		
	COD	mg/l	Composite	Monthly
		kg/day		
	Oil & Grease	mg/l	Grab ^[1,2]	Monthly
		kg/day		
	Phenolic Compounds	mg/l	Composite	Monthly
		kg/day		
	Ammonia as N	mg/l	Composite	Monthly
		kg/day		
	Total Sulfides	mg/l	Grab ^[2]	Monthly
		kg/day		
	Total and Hexavalent Chromium	µg/l	Composite	Monthly
		kg/day		
	Settleable Matter	ml/l/hr	Grab ^[2]	Monthly
	pH ^[3]	--	Continuous	Continuous
	Temperature	°F	Continuous	Continuous
	Chlorine Residual	mg/l	Grab	Daily
	Acute Fish Toxicity Test ^[4]	% Survival	Composite	Weekly
	Total Coliform ^[5]	MPN/100 ml	Grab	Weekly
	Chronic Toxicity Test ^[6]	Critical Life Stage	Composite	Semi-annually
	Arsenic ^[7]	µg/l	Composite	Quarterly
	Cadmium	µg/l	Composite	Quarterly
	Copper	µg/l	Composite	Monthly
	Cyanide ^[8]	µg/l	Composite	Monthly
	Lead	µg/l	Composite	Monthly
	Mercury	µg/l	Composite	Monthly
	Nickel	µg/l	Composite	Monthly
	Selenium ^[9]	µg/l	Composite	Weekly
	Silver	µg/l	Composite	Monthly
	Zinc	µg/l	Composite	Quarterly
	PAHs ^[10]	µg/l	Composite	Monthly
	Tributyltin ^[11]	µg/l	Grab ^[2]	Yearly
	USEPA Method 608 ^[12]	µg/l	Grab ^[2]	Yearly
	USEPA Method 624 ^[13]	µg/l	Grab ^[2]	Monthly
	USEPA Method 625 ^[14]	µg/l	Grab ^[2]	Yearly
	USEPA Method 1613 ^[15]	pg/l	Grab ^[2]	Yearly
	MTBE ^[16]	µg/l	Grab ^[2]	Monthly

<u>Station</u>	<u>Constituent</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency of Analysis</u>
E-002	Diazinon	ng/l	Grab ^[2]	Quarterly
	Standard Observations ^[17]	--	--	Daily
E-001 and E003	Flow Rate	MGD	Continuous	Daily
	pH	--	Grab ^[2]	Monthly
	Temperature	°F	--	Continuously
	TOC	mg/l	Grab ^[2]	Weekly
	Chlorine Residual	mg/l	Grab ^[2]	Every 2 hours only when Chlorination of the intake occurs
E-004	Oil & Grease	mg/l	Grab ^[2]	On each Occurrence
	TOC	mg/l	Grab ^[2]	On each Occurrence
	TPH ^[18]	mg/l	Grab ^[2]	When TOC is detected
	pH	mg/l	Grab ^[2]	On each Occurrence
	Standard Observations	--	--	On each Occurrence ^[19]
CR-1, CR-3 and C-2	pH	--	Grab ^[2]	Quarterly
	D.O.	mg/l	Grab ^[2]	Quarterly
	Sulfides ^[20]	mg/l	Grab ^[2]	Quarterly
	Unionized Ammonia	mg/l	Grab ^[2]	Quarterly
	Salinity	mg/l	Grab ^[2]	Quarterly
	Hardness as CaCO ₃ ^[21]	mg/l	Grab ^[2]	Quarterly
	Standard Observations	--	--	Quarterly
	Temperature	°F	Grab ^[2]	Weekly
C-1	Temperature	°F	Grab ^[2]	Daily
C-3	Temperature	°F	Grab ^[2]	Daily
I-001	Flow Rate	MGD	Continuous	Continuous
	TOC ^[22]	mg/l	Composite	Weekly

Notes for Table 1:

1. Sampling for oil and grease shall consist of 3 grab samples taken at 2-hour intervals during the sampling day, with each grab being collected in a glass container. The entire volume of each sample shall be composed prior to analysis. Each glass container used for sample collection or mixing shall be thoroughly rinsed with appropriate solvent agents as soon as possible after use, and the solvent rinsate shall be added to the composite wastewater sample for extraction and analysis.
2. Grab samples shall be collected coincident with samples collected for the analysis of the regulated parameters. In addition, the grab samples must be collected in glass containers. Polycarbonate containers may be used to store Tributyltin samples.
3. Daily minimum and maximum pH shall be reported.
4. Rainbow trout and Fathead Minnow are to be tested to pursuant to Effluent Limitation B.4.a. The tests shall be parallel 96-hour flow through bioassays. The Discharger shall perform the tests according to protocols approved by the USEPA, State Board, published by the American Society for Testing and Materials (ASTM), or American Public Health Association.
5. When replicate analyses are made of a coliform sample, the reported result shall be the arithmetic mean of the replicate analysis.
6. Critical Life Stage Toxicity Test shall be performed and reported in accordance with Chronic Toxicity Requirements specified in Sections II and III of this Self-Monitoring Program.
7. Arsenic must be analyzed by atomic absorption, gaseous hydride procedure (USEPA Method 206.3/Standard Method No. 303E). Alternative methods of analysis must be approved by the Executive Officer.
8. The Discharger may, at their option, analyze for cyanide as Weak Acid Dissociate Cyanide using protocols specified in Standard Method No. 4500-CN-I, or equivalent alternatives in latest edition. Alternative methods of analysis must be approved by the Executive Officer.
9. Selenium must be analyzed only by the atomic absorption, gaseous hydride procedure (USEPA Method 270.3/ Standard Method No. 303E). Alternative methods of analysis must be approved by the Executive Officer.
10. Polynuclear aromatic hydrocarbons (PAHs) shall be analyzed using the latest version of USEPA Method 610 (8100 or 8310). The samples must be collected in amber glass containers. These samples shall be collected for the analysis of the regulated parameters. The Discharger may use an automatic sampler that (i) incorporates glass sample containers, and (ii) keeps the samples refrigerated at 4°C and protected from light during compositing. The 24-hour composite samples may consist of eight grab samples collected at 3-hour intervals. The analytical laboratory shall remove flow-proportioned volumes from each sample vial or container for the analysis. Alternative methods of analysis must be approved by the Executive Officer.
11. To determine Tributyltin, the Discharger shall use GC-FPD or an USEPA approved method; the method shall be capable of speciating organotins and detecting concentrations at low limits

on the order of 5 nanograms per liter (ng/l). Alternative methods of analysis must be approved by the Executive Officer.

12. Organochlorine and other Organohalide Pesticides and Polychlorinated Biphenyl Toxic Pollutants shall be analyzed using the latest version of USEPA Method 608 (or 8080). Alternative methods of analysis must be approved by the Executive Officer.
13. Volatile Organic Toxic Pollutants shall be analyzed using the latest version of USEPA Method 624. Alternative methods of analysis must be approved by the Executive Officer.
14. Acid and Base/Neutral Extractable Organic Toxic Pollutants shall be analyzed using the latest version of USEPA Method 625. Alternative methods of analysis must be approved by the Executive Officer.
15. Chlorinated Dibenzodioxins and Chlorinated Dibenzofurans shall be analyzed using the latest version of USEPA Method 1613A; the method shall be capable of detecting concentrations on the order of pg/l or lower. Alternative methods of analysis must be approved by the Executive Officer.
16. MTBE (Methyl tertiary-Butyl-Ether) shall be prepared, analyzed and characterized by using the latest version of USEPA Method 624. Alternative methods of analysis must be approved by the Executive Officer.
17. Standard observations of the receiving water for determining compliance with Receiving Water Limitations specified in E.1 of the Order.
18. Total Petroleum Hydrocarbons for gasoline and diesel shall be prepared, analyzed and characterized by using the latest version of USEPA Method 8015M. Alternative methods of analysis must be approved by the Executive Officer.
19. Each occurrence shall refer to "significant stormwater discharge" on at least one storm event per month. These are continuous discharges of stormwater for a minimum of one hour, or an intermittent discharge of stormwater for a minimum of three hours in a 12-hour period.
20. Receiving water analysis for sulfides should be run when dissolved oxygen is less than 2.0 mg/l.
21. Hardness shall be determined using the latest version of USEPA Method 130.2. Alternative methods of analysis must be approved by the Executive Officer.
22. The intake measurements shall be collected coincident with samples collected at effluent stations E-001 and E-003.